

Appln No. 10/774,750
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Reply to Office action of November 27, 2006

REMARKS/ARGUMENTS

Claims 1-20 remain in the present application, of which claims 1 and 19 are independent. None of the claims has been cancelled. Claims 1, 19 and 20 have been amended herein. No new matter has been added. Applicants respectfully request reconsideration and allowance of claims 1-20.

I. Rejection of Claims 1, 11, 14-20 under 35 U.S.C. § 102(b)

Claims 1, 11 and 14-20 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Takenaka et al. (2002/0036460). Claim 19 was also rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Lee et al. (2002/0017875). These rejections are respectfully traversed.

As amended herein, claim 1 recites:

A field emission display, comprising:

a first substrate and a second substrate facing one another and having a predetermined gap therebetween;

an electron emission assembly formed on the first substrate for emitting electrons;

an illumination assembly formed on the second substrate for displaying images responsive to electrons emitted from the electron emission assembly; and

a grid plate mounted between the first and second substrates and configured to focus the electrons emitted from the electron emission assembly,

wherein the grid plate includes protrusions integrally formed thereon and extending from at least one side thereof, and

wherein the protrusions form a barrier configured to receive misdirected electrons of the electrons emitted from the electron emission assembly to prevent

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the misdirected electrons from hitting an unintended portion of the illumination assembly. (Emphasis added.)

For example, support for the amendment can be found at page 14, line 18 to page 15, line 5 of Applicants' specification. "To anticipate a claim, the reference must teach every element of the claims." (MPEP § 2131.) As such, Applicants submit that claim 1 is not anticipated by Takenaka et al. under § 102(b).

Takenaka et al. does not disclose or suggest "protrusions [that] form a barrier configured to receive misdirected electrons of the electrons emitted from the electron emission assembly to prevent the misdirected electrons from hitting an unintended portion of the illumination assembly[.]" as recited in amended claim 1. Instead, Takenaka et al. discloses first and second spacers 30a and 30b. (See FIG. 2.) Takenaka et al. does not disclose or suggest that the spacers 30a and 30b are "configured to form a barrier configured to receive misdirected electrons emitted from the electron emission assembly..." Instead, Takenaka et al. discloses that the first and second spacers 30a and 30b "abut against the inner surfaces of the face plate 12 and rear plate 10 to support the load of the atmospheric pressure acting on these plates, and maintain the gap between the plates at a predetermined value." (See Paragraph [0092].) Furthermore, Takenaka et al. discloses that "charging of the second spacers 30b does not easily influence the trajectories of the electron beams." (See Paragraph [0150].) (Emphasis added.) Furthermore, "since [the] aspect ratio [of the first spacers 30a] is sufficiently large, they do not easily influence the trajectories of the electron beams." (See Paragraph [0151].) (Emphasis added.)

As such, independent claim 1 is not anticipated by Takenaka et al. for at least the reason that it recites, in a relevant portion, "protrusions [that] form a barrier configured to receive misdirected electrons of the electrons emitted from the electron emission assembly to prevent the misdirected electrons from hitting an unintended portion of the illumination assembly." (Emphasis added.) Therefore, Applicants respectfully request that the rejection of claim 1 under § 102(b) be withdrawn and that this claim be allowed.

Claims 11 and 14-18 depend directly or indirectly from claim 1. As such, these dependent claims incorporate all the terms and limitations of their respective base claims in

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addition to other limitations, which together further patentably distinguish these claims over the cited reference. At least for the reasons explained, it is believed that claims 11 and 14-18 are not anticipated by Takenaka et al. Therefore, Applicants respectfully request that the rejection of these claims under § 102(b) be withdrawn and that these claims be allowed.

As amended herein, claim 19 recites:

A field emission display, comprising:

a first substrate and a second substrate facing one another and having a predetermined gap therebetween;

an electron emission assembly formed on the first substrate for emitting electrons by generating an electric field;

an illumination assembly formed on the second substrate for realizing a display of images responsive to electrons emitted from the electron emission assembly; and

a grid plate mounted between the first and second substrates and configured to focus the electrons emitted from the electron emission assembly,

wherein the grid plate includes protrusions extending from at least one side thereof and a mask section having apertures through which electrons are passed, and

wherein the protrusions are formed between the apertures formed in the mask section and extend along first and second directions that are substantially perpendicular to each other to thereby form a lattice pattern. (Emphasis added.)

As such, Applicants submit that claim 19 is not anticipated by Takenaka et al. under § 102(b).

FIG. 14 in Takenaka et al. shows second spacers 30b having "elongated elliptic section[s]." (See Paragraph [0145].) Two first spacers 30a are "arranged for one second spacer 30b" apparently along the elliptic section of the second spacer 30b. (See FIG. 14 and Paragraph [0146].) As such, the first and second spacers 30a and 30b of Takenaka et al. do not "extend along first and second directions that are substantially perpendicular to each other..." In more

detail, the first and second spacers 30a and 30b do not "extend along first and second directions that are substantially perpendicular to each other to thereby form a lattice pattern" such as that shown, by way of example, in FIG. 7 of Applicants' specification. At least for this reason, it is believed that claim 19 is not anticipated by Takenaka et al. Thus, Applicants respectfully request that the rejection of claim 19 under § 102(b), based on Takenaka et al., be withdrawn and that this claim be allowed.

Claim 19 was also rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Lee et al. Applicants submit that Lee et al. also does not disclose or suggest that "the protrusions ...extend along first and second directions that are substantially perpendicular to each other to thereby form a lattice pattern[,]" as recited in amended claim 19.

Rather, FIG. 9 in Lee et al. shows first and second spacers 2 and 4. The first and second spacers 2 and 4 are not shown as "extend[ing] along first and second directions that are substantially perpendicular to each other..." In more detail, the first and second spacers 2 and 4 are not shown as "extend[ing] along first and second directions that are substantially perpendicular to each other to thereby form a lattice pattern" such as that shown, by way of example, in FIG. 7 of Applicants' specification. In addition, the first grid electrode 20 and the second grid electrode 22 in Lee et al. (see FIG. 2) also do not "extend along first and second directions that are substantially perpendicular to each other to thereby form a lattice pattern" such as that shown, by way of example, in FIG. 7 of Applicants' specification. Rather, Lee et al. discloses that "each line pattern of the first grid electrode 20 and the second grid electrode 22 are arranged in a direction of the X-axis." (See FIG. 2 and Paragraph [0046].) (Emphasis added.) In other words, Lee et al. teaches that the first grid electrode 20 and the second grid electrode 22 are arranged parallel (and not substantially perpendicular) to each other. As such, Lee et al. does not disclose or suggest that "the protrusions...extend along first and second directions that are substantially perpendicular to each other to thereby form a lattice pattern [,]" as recited in claim 19.

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At least for the reasons given above, it is believed that claim 19 is not anticipated by Lee et al. Thus, Applicants respectfully request that the rejection of claim 19 under § 102(b), based on Lee et al., be withdrawn and that this claim be allowed.

Claim 20 depends directly from claim 19. As such, this dependent claim incorporates all the terms and limitations of claim 19 in addition to other limitations, which together further patentably distinguish this claim over the cited reference. Claim 20 has been amended to correct minor clerical errors. That is, the phrase "cross-sectional area of the protrusions decreases as the protrusions are traversed from a first end closer to the first substrate to a second end closer to the second substrate" has been replaced with "cross-sectional area of the protrusions decreases as the protrusions are traversed from a first end closer to the second substrate to a second end closer to the first substrate." No new matter is added. For example, support for these amendments can be found in page 13, lines 1-4 of Applicants' specification.

At least for the reasons explained, it is believed that claim 20 is not anticipated by Takenaka et al. Therefore, Applicants respectfully request that the rejection of claim 20 under § 102(b) be withdrawn and that this claim be allowed.

II. Rejection of Claims 1-20 under 35 U.S.C. § 103(a)

Claims 1-2, 5-6, 9-11 and 13-17 were rejected under § 103(a) as allegedly being unpatentable over Lee et al. Claims 18 and 20 were rejected under § 103(a) as allegedly being unpatentable over Lee et al. in view of Takenaka et al. Claims 3-4 were rejected under § 103(a) as allegedly being unpatentable over Lee et al. in view of Russ et al. (6,791,278). Claims 7-8 were rejected under § 103(a) as allegedly being unpatentable over Lee et al. in view of Jo et al. (6,621,232). Claim 12 was rejected under § 103(a) as allegedly being unpatentable over Lee et al. in view of Deguchi et al. (6,400,091). These rejections are respectfully traversed.

As previously explained, claim 1 recites, in relevant portions, "[a] field emission display...wherein the protrusions form a barrier configured to receive misdirected electrons of the electrons emitted from the electron emission assembly to prevent the misdirected electrons from

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hitting an unintended portion of the illumination assembly." (Emphasis added.) Applicants submit that Lee et al. does not disclose or suggest "protrusions [that] form a barrier configured to receive misdirected electrons of the electrons emitted from the electron emission assembly to prevent the misdirected electrons from hitting an unintended portion of the illumination assembly."

Rather, the first and second spacers 2 and 4 in Lee et al. (see FIG. 2) are "for maintaining the space between the back plate and the grid plate" and "for maintaining the space between the grid plate and the faceplate," respectively. (See Paragraph [0018].) Lee et al. does not disclose or suggest that the first and second spacers 2 and 4 "form a barrier configured to receive misdirected electrons of the electrons emitted from the electron emission assembly..."

In addition, Applicants submit that Lee et al. does not disclose or suggest that the first grid electrode 20 and the second grid electrode 22 (see FIG. 2) "form a barrier configured to receive misdirected electrons of the electrons emitted from the electron emission assembly..." In contrast, Lee et al. discloses that "[a] focus signal voltage is applied to the first grid electrode 20 to convergence [sic] the electrons to the apertures 6a of the grid plate 6" and that "[a] deflection signal voltage is applied to the second grid electrode 22 so as to deflect the electrons passing through the apertures 6a to corresponding target phosphors." (See Paragraph [0052] and FIG. 5.) (Emphasis added.)

As such, independent claim 1 is patentable over Lee et al. for at least the reason that it recites, in a relevant portion, "protrusions [that] form a barrier configured to receive misdirected electrons of the electrons emitted from the electron emission assembly to prevent the misdirected electrons from hitting an unintended portion of the illumination assembly." (Emphasis added.) Therefore, Applicants respectfully request that the rejection of claim 1 under § 103(a) be withdrawn and that this claim be allowed.

Claims 2, 5-6, 9-11 and 13-17 depend directly or indirectly from claim 1. As such, these dependent claims incorporate all the terms and limitations of their respective base claims in addition to other limitations, which together further patentably distinguish these claims over the cited reference. At least for the reasons explained, it is believed that claims 2, 5-6, 9-11 and 13-

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17 are patentable over Lee et al. Therefore, Applicants respectfully request that the rejection of these claims under § 103(a) be withdrawn and that these claims be allowed.

Claim 18 depends indirectly from claim 1. As previously explained, neither Lee et al. nor Takenaka et al., either singly or in combination, discloses or suggests "protrusions [that] form a barrier configured to receive misdirected electrons of the electrons emitted from the electron emission assembly to prevent the misdirected electrons from hitting an unintended portion of the illumination assembly[.]" as recited in claim 1. Because claim 18 depends indirectly from claim 1, claim 18 incorporates all the terms and limitations of its base claim in addition to other limitations, which together further patentably distinguish this claim over Lee et al. in view of Takenaka et al. At least for these reasons, it is believed that claim 18 is patentable over Lee et al. in view of Takenaka et al. Therefore, Applicants respectfully request that the rejection of claim 18 under § 103(a) be withdrawn and that this claim be allowed.

Claim 20 depends directly from claim 19. As previously explained, neither Lee et al. nor Takenaka et al., either singly or in combination, discloses or suggests "protrusions [that] extend along first and second directions that are substantially perpendicular to each other to thereby form a lattice pattern[.]" as recited in claim 19. Because claim 20 depends indirectly from claim 19, claim 20 incorporates all the terms and limitations of its base claim in addition to other limitations, which together further patentably distinguish this claim over Lee et al. in view of Takenaka et al. At least for these reasons, it is believed that claim 20 is patentable over Lee et al. in view of Takenaka et al. Therefore, Applicants respectfully request that the rejection of claim 20 under § 103(a) be withdrawn and that this claim be allowed.

Claims 3-4 depend either directly or indirectly from claim 1. Applicants submit that Russ et al. does not supply the limitations previously noted to be missing from Lee et al. That is, Russ et al. does not disclose or suggest "protrusions [that] form a barrier configured to receive misdirected electrons of the electrons emitted from the electron emission assembly to prevent the misdirected electrons from hitting an unintended portion of the illumination assembly[.]" as recited in claim 1. Because claims 3-4 depend either directly or indirectly from claim 1, these claims incorporate all the terms and limitations of their respective base claims in addition to

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other limitations, which together further patentably distinguish these claims over Lee et al. in view of Russ et al. At least for the reasons explained, it is believed that claims 3-4 are patentable over Lee et al. in view of Russ et al. Therefore, Applicants respectfully request that the rejection of claims 3-4 under § 103(a) be withdrawn and that these claims be allowed.

Claims 7-8 depend either directly or indirectly from claim 1. Applicants submit that Jo et al. does not supply the limitations previously noted to be missing from Lee et al. That is, Jo et al. does not disclose or suggest "protrusions [that] form a barrier configured to receive misdirected electrons of the electrons emitted from the electron emission assembly to prevent the misdirected electrons from hitting an unintended portion of the illumination assembly[.]" as recited in claim 1. Because claims 7-8 depend either directly or indirectly from claim 1, these claims incorporate all the terms and limitations of their respective base claims in addition to other limitations, which together further patentably distinguish these claims over Lee et al. in view of Jo et al. At least for the reasons explained, it is believed that claims 7-8 are patentable over Lee et al. in view of Jo et al. Therefore, Applicants respectfully request that the rejection of claims 7-8 under § 103(a) be withdrawn and that these claims be allowed.

Claim 12 depends indirectly from claim 1. Applicants submit that Deguchi et al. does not supply the limitations previously noted to be missing from Lee et al. That is, Deguchi et al. does not disclose or suggest "protrusions [that] form a barrier configured to receive misdirected electrons of the electrons emitted from the electron emission assembly to prevent the misdirected electrons from hitting an unintended portion of the illumination assembly[.]" as recited in claim 1. Because claim 12 depends indirectly from claim 1, this claim incorporates all the terms and limitations of its base claim in addition to other limitations, which together further patentably distinguish this claim over Lee et al. in view of Deguchi et al. At least for the reasons explained, it is believed that claim 12 is patentable over Lee et al. in view of Deguchi et al. Therefore, Applicants respectfully request that the rejection of claim 12 under § 103(a) be withdrawn and that this claim be allowed.

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IV. Concluding Remarks

In view of the foregoing amendments and remarks, Applicants earnestly solicit an early issuance of a Notice of Allowance allowing claims 1-20. If there are any remaining issues that can be addressed over the telephone, the Examiner is encouraged to call Applicants' attorney at the number listed below.

Respectfully submitted,
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